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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,791	12/28/2001	Yaosheng Chen		7204

7590 12/02/2003  
Yaosheng Chen  
200 Country Club Drive Bldg D  
Blacksburg, VA 24060

EXAMINER

PUNNOOSE, ROY M

ART UNIT PAPER NUMBER

2877

DATE MAILED: 12/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 10/032,791	Applicant(s) CHEN, YAOSHENG	
	Examiner Roy M. Punnoose	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                 | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ | 6) <input type="checkbox"/> Other: ____                                     |

### **DETAILED ACTION**

1. An examination of this application reveals that applicant is unfamiliar with patent prosecution procedure. While an inventor may prosecute the application, lack of skill in this field usually acts as a liability in affording the maximum protection for the invention disclosed. Applicant is advised to secure the services of a registered patent attorney or agent to prosecute the application, since the value of a patent is largely dependent upon skilled preparation and prosecution. The Office cannot aid in selecting an attorney or agent.

Applicant is advised of the availability of the publication "Attorneys and Agents Registered to Practice Before the U.S. Patent and Trademark Office." This publication is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

### ***Specification***

#### **Content of Specification**

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading.

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS (if applicable).
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT (if applicable).
- (d) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (e) BRIEF SUMMARY OF THE INVENTION.
- (f) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (g) DETAILED DESCRIPTION OF THE INVENTION.

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- (h) CLAIM OR CLAIMS (commencing on a separate sheet).
- (i) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

3. The following guidelines illustrate the content of the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Content of the Specification**

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:
  - (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
  - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (e) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.

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- (f) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (g) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.
- (h) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet or electronic page (37 CFR 1.52(b)(3)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (i) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).

### **Abstract**

4. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set

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forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The abstract of the instant application contains grammatical errors (see lines 1-2) and refers to purported merits (see lines 5-6). Appropriate correction is required.

### ***Drawings***

7. The drawings are objected to under 37 CFR 1.83(a) because they fail to show a micro-processing unit as described in the specification (see page 5, 3rd paragraph, lines 8-9). A micro-processing unit in the first unit is not shown in the drawing.

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8. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the LED as described in the specification (see page 6, 2nd paragraph, line 2).

9. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *35 USC § 112 Rejections*

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification, including the abstract, is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are:

a. "... decipher the technology of the oil station." (page 1, 1<sup>st</sup> paragraph, line 4). An oil station may use technologies in various fields such as electrical, mechanical, chemical, etc. for extracting oil. It is unclear what specific technology or what is being "deciphered" by the claimed invention.

b. “The station(s) will serve as the database ...” (page 1, 1<sup>st</sup> paragraph, lines 3-4). It is possible that the data generated by the station(s) may serve as a database. But it is unclear how the station(s) can serve as a database.

c. “Once oil extractions are relayed from oil wells, data will be conveyed in an analytical laboratory is the present method at hand” (page 2, lines 1-2). This sentence is grammatically incorrect. It is not clear what data is being conveyed, and it gives the perception that data is being conveyed within the laboratory and not from the oil wells to the laboratory as the applicant may have intended.

d. Incorrect punctuation (semicolon) on line 3 has rendered the sentence vague and indefinite.

e. It is not clear what the applicant means by “intellectual setup process” (page 2, line 10).

f. Oil, water, and gas holdup are major indexes ...” (page 4, 2<sup>nd</sup> paragraph, line 1). The Examiner believes that the applicant is referring to water and gas content in the above sentence.

g. “The analytical data of gas holdup is not sufficient due to the evaporation of hydrocarbons in the oil sample” (page 4, 2<sup>nd</sup> paragraph, lines 9-10). The Examiner does not understand what is being disclosed by the above sentence. It may be re-stated as in the examples shown below:

i. The analytical data on gas content is difficult to measure due to the evaporation of hydrocarbons in the oil sample; or,

- ii. The analytical data on gas content is not accurate due to the evaporation of hydrocarbons in the oil sample.

Note: The above items (i) and (ii) are only examples of how to better describe applicant's invention. The applicant should rewrite the sentence in an appropriate and suitable manner to make the claimed invention understandable to one of ordinary skill in the art.

- h. "... hydrocarbons polluting the oil samples" (page 2, line 3). The Examiner assumes that the "oil" the applicant is referring to is petroleum. If this is the case, then petroleum is a hydrocarbon mixture, and it is not clear how hydrocarbons can pollute a hydrocarbon mixture. If the applicant is referring to some other type of oil, then it has to be stated appropriately in the specification.

- i. "Lights, with a wavelength range of 0.85-1.55 ..." (page 6, 2<sup>nd</sup> paragraph, line 2). The unit of measurement (nm,  $\mu$ m, etc.) of the wavelength is not disclosed.

The above is a listing of only some of the several errors found in the specification. The applicant should review the specification thoroughly and make appropriate corrections as required to make the claimed invention clear to one of ordinary skill in the art.

12. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

- a. The specification recites "The method" (page 1, 1<sup>st</sup> paragraph, line 2). There is insufficient antecedent basis for "the method" in the specification.
- b. The specification recites "The sampler" (page 5, 3<sup>rd</sup> paragraph, line 8). There is insufficient antecedent basis for "the sampler" in the specification.

- c. The specification recites “The LED” (page 6, 2nd paragraph, line 2). There is insufficient antecedent basis for “the method” in the specification.
- d. The specification recites “the space n” (page 6, 2nd paragraph, line 4). There is insufficient antecedent basis for “the space n” in the specification.
- e. The specification recites “the index n” (page 6, 2nd paragraph, line 7). There is insufficient antecedent basis for “the index n” in the specification.
- f. “The sampler from the second unit transmits signals of oil/water/gas, which are obtained from the first unit from the micro-processing unit” (page 5, 3rd paragraph, lines 8-9). There is insufficient antecedent basis for “a micro-processing unit in the first unit” in the specification.

The above is a listing of only some of the several errors found in the specification. The applicant should review the specification thoroughly and make appropriate corrections as required to make the claimed invention clear to one of ordinary skill in the art.

**13. A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.**

#### *Claim Objections*

- 14. Claim 3 recites the limitation "the probe" in line 3. There is insufficient antecedent basis for this limitation in the claim.

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15. Claim 3 recites the limitation "the fiber optical sensor" in line 3. There is insufficient antecedent basis for this limitation in the claim.

16. With regard to item 15 above, the Examiner believes that the applicant is referring to the "the fiber optical sensor" of claim 1. If so, then claim 3 should state that it is dependent on claim 1. Appropriate corrections are required.

17. In case claim 3 is NOT dependent on claim 1, then claim 3 is restrictable for reasons detailed in items 21-25 below.

***Claim Rejections - 35 USC § 112***

18. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

19. Claims 1-3 are rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph.

Claims 1-3 are rejected because they are narrative in form and replete with indefinite and functional or operational language. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. The claims must be in **one sentence form only**. Note the format of the claims in the patents cited.

Additionally, claim 1 is rejected because, the preamble states that what is being claimed is "a method and apparatus for on-line monitoring of oil, gas and water holdup." A method and apparatus cannot be claimed in a single claim. An apparatus/device claim must consist of all the elements of the apparatus/device, and the structure that goes to make up the apparatus/device

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must be clearly and positively specified. Similarly, a method claim must clearly and positively specify a series or sequence of steps that are required to perform a task.

Additionally, claim 2 is rejected for the same reasons for which claim 1 is rejected, and also because it is dependent on claim 1.

Additionally, claim 3 is rejected because, in place of a preamble it states a set of goals to achieve pollution resistance, and, it is not clear if it is an apparatus or a method claim.

Note: The applicant may want to replace all instances of “holdup” with “content” and, all instances of “pollution” with “corrosion” in the instant application, because the Examiner believes that those may have been what the applicant intended to use.

**20. Because claims 1-3 are narrative in form and replete with indefinite and functional or operational language, patentable weight has been given only to “an apparatus for on-line monitoring of oil, gas and water content of crude oil in a transferring pipe, the apparatus comprising a plurality of fiber optical sensors, said fiber optical sensors coated with gold or nickel layer having a thickness of 4nm to 10nm.” Patentable weight has NOT been given to any other element or limitation of the above claims.**

***Election/Restrictions***

21. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-2, drawn to an apparatus for on-line monitoring of oil, gas and water content of crude oil in a transferring pipe, classified in class 356, subclass 70.
- II. Claim 3, drawn to an optical fiber sensor to measure reflected light, classified in class 356, subclass 445.

22. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the fiber optic sensor does not have to have a metal coating for on-line monitoring of oil, gas and water content of crude oil in a transferring pipe. The subcombination, the coated optical fiber sensor of claim 3, has separate utility such as a light filter that will allow only certain desired wavelengths of light to pass through said coating on the optical fiber sensor.

23. Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

24. Applicant is advised that the reply to this requirement to be complete **must** include an election of the invention to be examined even though the requirement is traversed (37 CFR 1.143).

25. Applicant is reminded that the Election/Restriction requirement applies to the instant application ONLY if claim 3 is in independent form. If the applicant amends claim 3 to depend on any one of the previous claims, that is claim 1 or claim 2, the above Election/Restriction requirement will become moot.

#### ***Claim Rejections - 35 USC § 102***

26. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

27. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Infante (US\_5,742,064).

Claims 1 and 2 are rejected because Infante discloses an apparatus comprising a plurality of fiber optical sensors 12, 13 (see Figure 2a-2c) for on-line monitoring for detecting contaminants in crude oil in a transferring pipe (see col.3, line 39 – col.4, line 13).

Note: Applicant is reminded that, as stated in item 20 above, because claims 1-3 are narrative in form and replete with indefinite and functional or operational language, patentable weight has been given only to “an apparatus for on-line monitoring of oil, gas and water content of crude oil in a transferring pipe, the apparatus comprising a plurality of fiber optical sensors, said fiber optical sensors coated with gold or nickel layer having a thickness of 4nm to 10nm.” Patentable weight has NOT been given to any other element or limitation of the above claims.

### ***Claim Rejections - 35 USC § 103***

28. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

29. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Infante (US\_5,742,064) in view of Angel et al (US\_4,781,458).

A. Infante teaches all claim limitations as stated above. However, Infante does not teach of coating of fiber optical sensors, said gold coating having a thick ness

range of 4nm to 10nm, for enhancing sensor dynamic range in an on-line monitoring system for detecting contaminants in crude oil in a transferring pipe.

- B. Angel et al (Angel hereinafter) teaches of fiber optical sensor 13 having a gold coating 22, said gold coating having a thick ness range of 1nm to 5nm (10 to 50 Angstrom) provided for enhancing certain light emission signals (see col.3, line 65 – col. 4, line 21), which is equivalent to enhancing the sensor dynamic range, for detecting constituents of a fluid medium.
- C. In view of Angel's teaching of 1 nm to 5 nm thick gold or other metal coating of a fiber optical sensor for enhancing certain light emission signals, which is equivalent to enhancing the sensor dynamic range, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the above Angel teaching into Infante's fiber optical sensors, said gold coating having a thickness range of 4nm to 10nm, for the express purpose of enhancing fiber optic sensor dynamic range. Accordingly, such an incorporation would have constituted an alternative means/obvious engineering expedience for one of ordinary skill in the art.

### ***Conclusion.***

30. In case the applicant elects not to secure the services of a registered patent attorney or agent for the prosecution of the instant the application, the Examiner suggests that the applicant review the cited patents, particularly Angel et al (U.S. Patent 4,781,458) and Infante (U.S. Patent 5,742,064) and use them as models before revising and correcting the errors of the instant

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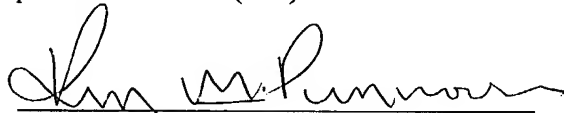
application. Also, the applicant may telephone the Examiner for any clarifications, additional suggestions or help on how to correct the errors of the instant patent application.

31. Any inquiry concerning this communication from the examiner should be directed to **Examiner Roy M. Punnoose** whose telephone number is **703-306-9145**. The examiner can normally be reached on 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the applicant can reach his *Supervisory Patent Examiner*, **Frank G. Font**, at **(703) 308-4881**.

The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9306 for After Final communications.

Any inquiry of a **general nature** or relating to the status of this application should be directed to the Group receptionist whose telephone number is **(703) 305-0530**.

A handwritten signature in black ink, appearing to read 'Roy M. Punnoose', written over a horizontal line.

**Roy M. Punnoose**

Patent Examiner

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November 22, 2003